Permit Fact Sheet

General Information

Permit Number:	WI-0024619-09-0	
Permittee Name:	City of Markesan	
Address:	P.O. Box 352	
City/State/Zip:	Markesan, WI, 53946	
Discharge Location:	South bank of the Grand River, one-quarter mile downstream of S. Margaret Street bridge (Lat: 43.70477° N Long: -88.99797° W)	
Receiving Water:	Grand River (Upper Grand River Watershed, Upper Fox River Basin) in Green Lake County	
StreamFlow ($Q_{7,10}$):	1.6 cfs	
Stream Classification:	Warm water sport fish community; non-public water supply	
Design Flow(s)	Daily Maximum	0.816 MGD
	Weekly Maximum	0.64 MGD
	Monthly Maximum	0.52 MGD
	Annual Average	0.362 MGD
Significant Industrial Loading?	Yes. Avalon Precision Metalsmiths (small parts castings), L.W.S. Enterprises (metal rivet production), Del Monte (food processing)	
Operator at Proper Grade?	Yes; Anthony Doro the OIC is certified in all plant subclasses. Markesan is an Advanced facility in subclasses A1, B, C, D, L, and SS.	
Approved Pretreatment Program?	N/A	

Facility Description

The City of Markesan owns and operates 0.362 MGD wastewater treatment facility that services approximately 1,600 residents from the City of Markesan and the Little Green Lake Sanitary District. The plant was remodeled in 2018, which included addition of tanks for enhanced biological phosphorus removal. Wastewater enters the plant through a bar screen and travels through grit and grease removal. After grit and grease removal, wastewater is directed to three anaerobic/fermentation tanks to enhance biological phosphorus removal before entering the oxidation ditch. The wastewater then passes through two final clarifiers and receives UV disinfection prior to discharge to the Grand River. Biosolids are stored in an above ground storage tank before being land applied to Department-approved agricultural fields via injection. The Department has found the facility to be in substantial compliance with the current permit.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
701	Flow 0.24 MGD; BOD_5 163.30 mg/L; TSS 192.96 mg/L (All July	INFLUENT: 24-hour flow proportional composite samples shall be collected from the influent channel upstream of the Parshall flume. Flow shall be measured in the grit and screening room after grit

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
	2015 through January 2020 avg)	removal.
001	BOD_5 10.43 mg/L; TSS 5.67 mg/L (All July 2015 through January 2020 avg)	EFFLUENT: 24-hour flow proportional composite samples shall be collected from the north end of the chlorine tank prior to UV disinfection. Grab samples shall be collected prior to step-aeration.
003	18 dry US tons generated annually (per 2020 permit application)	Aerobically digested, liquid sludge samples shall be collected from the line between the sludge tank and hauling unit.

1 Influent - Proposed Monitoring

1.1 Sample Point Number: 701- Influent

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	2/Week	24-Hr Flow Prop Comp	See 'Sample Frequency 2/Week' section in permit.
Suspended Solids, Total		mg/L	2/Week	24-Hr Flow Prop Comp	See 'Sample Frequency 2/Week' section in permit.

1.1.1 Changes from Previous Permit:

No changes from previous permit.

1.1.2 Explanation of Limits and Monitoring Requirements

BOD_5 and Total Suspended Solids: Tracking of BOD_5 and total suspended solids are required for percent removal requirements found in s. NR 210.05, Wis. Adm. Code and in the standard requirements section of the permit.

2 Surface Water - Proposed Monitoring and Limitations

2.1 Sample Point Number: 001- Effluent

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD5, Total	Weekly Avg	45 mg/L	2/Week	24-Hr Flow Prop Comp	November-April

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD5, Total	Weekly Avg	25 mg/L	2/Week	24-Hr Flow Prop Comp	May-October
BOD5, Total	Monthly Avg	30 mg/L	2/Week	24-Hr Flow Prop Comp	November-April
BOD5, Total	Monthly Avg	25 mg/L	2/Week	24-Hr Flow Prop Comp	May-October
BOD5, Total	Weekly Avg	75.5 lbs/day	2/Week	Calculated	May-October
Suspended Solids, Total	Weekly Avg	45 mg/L	2/Week	24-Hr Flow Prop Comp	November-April
Suspended Solids, Total	Weekly Avg	25 mg/L	2/Week	24-Hr Flow Prop Comp	May-October
Suspended Solids, Total	Monthly Avg	30 mg/L	2/Week	24-Hr Flow Prop Comp	November-April
Suspended Solids, Total	Monthly Avg	25 mg/L	2/Week	24-Hr Flow Prop Comp	May-October
Suspended Solids, Total	Weekly Avg	85.3 lbs/day	2/Week	Calculated	Year-round
Suspended Solids, Total	Monthly Avg	57.2 lbs/day	2/Week	Calculated	Year-round
Suspended Solids, Total		lbs/month	Monthly	Calculated	Calculate the Total Monthly Discharge of TSS and report on the last day of the month on the DMR. See TMDL Calculations section in permit.
Suspended Solids, Total		lbs/yr	Monthly	Calculated	Calculate the 12-month rolling sum of total monthly mass of TSS discharged and report on the last day of the month on the DMR. See TMDL Calculations section in permit.
pH Field	Daily Min	6.0 su	5/Week	Grab	
pH Field	Daily Max	9.0 su	5/Week	Grab	
Dissolved Oxygen	Daily Min	6.0 mg/L	5/Week	Grab	
Fecal Coliform	Geometric Mean - Monthly	400 #/100 ml	Weekly	Grab	Interim limit effective May-September annually until the final limit goes into effect per the 'Effluent Limitations for

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					E. coli' Schedule.
E. coli		#/100 ml	Weekly	Grab	Monitoring only May-September annually until the final limit goes into effect per the 'Effluent Limitations for E. coli' Schedule.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit effective May-September annually per the 'Effluent Limitations for E. coli' Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit effective May-September annually per the 'Effluent Limitations for E. coli' Schedule. See the 'E. coli Percent Limit' section in permit. Enter the result in the DMR on the last day of the month.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	24 mg/L	Weekly	24-Hr Flow Prop Comp	Year-round
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	21 mg/L	Weekly	24-Hr Flow Prop Comp	October-March
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	8.9 mg/L	Weekly	24-Hr Flow Prop Comp	April-May
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	13 mg/L	Weekly	24-Hr Flow Prop Comp	June-September
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	13 mg/L	Weekly	24-Hr Flow Prop Comp	October-March
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.4 mg/L	Weekly	24-Hr Flow Prop Comp	April-May
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	9.3 mg/L	Weekly	24-Hr Flow Prop Comp	June-September
Phosphorus, Total	Monthly Avg	1.0 mg/L	Weekly	24-Hr Flow Prop Comp	This is an interim limit effective through June 30, 2022 and a technology based effluent limit effective through the end of the permit term. See Phosphorus TMDL subsection and Schedules section.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Phosphorus, Total	Monthly Avg	2.0 lbs/day	Weekly	Calculated	Monitoring only upon permit effective date. Final TMDL-based mass limits go into effect per the phosphorus schedule. See Phosphorus TMDL subsection in permit.
Phosphorus, Total	6-Month Avg	0.68 lbs/day	Weekly	Calculated	Monitoring only upon permit effective date. Final TMDL-based mass limits go into effect per the phosphorus schedule. See Phosphorus TMDL subsection in permit.
Phosphorus, Total		lbs/month	Monthly	Calculated	Calculate the Total Monthly Discharge of phosphorus and report on the last day of the month on the DMR. See TMDL Calculations section in permit.
Phosphorus, Total		lbs/yr	Monthly	Calculated	Calculate the 12-month rolling sum of total monthly mass of phosphorus discharged and report on the last day of the month on the DMR. See TMDL Calculations section in permit.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See 'Nitrogen Series Monitoring' section in permit.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See 'Nitrogen Series Monitoring' section in permit.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Annual in rotating quarters. See 'Nitrogen Series Monitoring' section below. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Temperature		deg F	3/Week	Measure	Monitoring during calendar

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Maximum					year 2023.
Chronic WET	Monthly Avg	1.7 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See 'WET Testing' section in permit.

2.1.1 Changes from Previous Permit

Total Suspended Solids TMDL Limits: Mass based TSS limits of 85.3 lbs/day as a weekly average and 57.2 lbs/day as a monthly average were added to the permit to comply with requirements of the Upper Fox Wolf River TMDL. Effluent concentration (mg/L) shall be monitored and reported 2 times per week upon permit reissuance and will be used to calculate amounts reported for mass-based limits. An additional reporting requirement of lbs/month will be used to calculate the facility's 12-month rolling sum of total monthly discharge, which can be compared directly to the facility's designated WLA.

Fecal Coliform and E. coli: Fecal coliform monitoring and limits have been replaced with Escherichia coli (E. coli) monitoring and limits. E. coli monitoring is required at the permit effective date. An interim fecal coliform limit of 400 #/100 ml as a monthly geometric mean will apply from the permit effective date through the end of a schedule. At the end of the schedule, E. coli limits of 126 #/100 ml as a monthly geometric mean that may never be exceeded and 410 #/100ml as a daily maximum that may not be exceeded more than 10 percent of the time in any calendar month will apply.

Chloride: Monthly chloride monitoring was removed from the proposed permit, as data collected during the previous permit term demonstrated no reasonable potential for effluent to exceed the calculated limit.

Phosphorus TMDL Limits: An interim limit of 1.0 mg/L goes into effect upon reissuance, and will remain in effect as a technology-based effluent limitation beyond the final TMDL limit effective date, unless a more stringent limit is required at a future permit issuance by ss. NR 217.13 and NR 217.16(2), Wis. Adm. Code, or the limit is relaxed following procedures outlined in ch. NR 207, Wis. Adm. Code. Discharge effluent concentration (mg/L) shall be reported one time per week upon permit reissuance and will be used to calculate amounts reported for mass-based parameters. An additional reporting requirement for lbs/month will be used to calculate the facility's 12-month rolling sum of total monthly discharge, which can be compared directly to the facility's designated WLA. Final TMDL WLA-based effluent limits of 0.68 lbs/day as a six-month average and 2.0 lbs/day as a monthly average will go into effect in accordance with the schedule in section 4.2 of the permit.

Total Nitrogen Monitoring (TKN, N02 + N03 and Total N): Annual monitoring in rotating quarters throughout the permit term was added to the proposed permit.

Temperature Maximum: Continuous temperature monitoring was added for calendar year 2023.

WET Testing: A chronic monthly average limit of 1.7 TUc was added to the proposed permit. Acute WET monitoring was removed from the proposed permit.

2.1.2 Explanation of Limits and Monitoring Requirements

Categorical Limits

- **Total BOD_5, Total Suspended Solids, pH, and Dissolved Oxygen:** Standard municipal wastewater requirements for BOD_5, total suspended solids, pH, and dissolved oxygen, are included based on ch. NR 210, Wis. Adm. Code 'Sewage Treatment Works' requirements for discharges to fish and aquatic life streams. Chapter NR 102, Wis. Adm. Code 'Water Quality Standards for Surface Waters' also specifies requirements for pH for fish and aquatic life streams.

Water Quality Based Limits, WET Requirements, and Disinfection

Refer to the "Water Quality-Based Effluent Limitations for the Markesan Wastewater Treatment Facility", prepared by Nicole Krueger, dated June 26, 2020, and used for this reissuance.

- **E. Coli:** Revisions to bacteria surface water quality criteria to protect recreational uses and accompanying E. coli WPDES permit implementation procedures became effective May 1, 2020. The new rule requires that WPDES permits for facilities with required disinfection include monitoring for E. coli while facilities are disinfecting during the recreation period and establish effluent limitations for E. coli established in s. NR 210.06 (2), Wis. Adm. Code. The administrative code rule changes included the following actions: revised the bacteria water quality criteria from fecal coliform to E. coli to protect recreation in ch. NR 102, Wis. Adm. Code; removed fecal coliform criteria for certain individual waters from ch. NR 104, Wis. Adm. Code; revised permit requirements for publicly and privately owned sewage treatment works in ch. NR 210, Wis. Adm. Code; and updated approved analytical methods for bacteria in ch. NR 219, Wis. Adm. Code.
- **Total Ammonia Nitrogen:** Current acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Table 2C and Table 4B of ch. NR 105, Wis. Adm. Code (effective March 1, 2004). Subchapter IV of ch. NR 106 establishes procedures for calculating water quality-based effluent limitations (WQBELs) for ammonia (effective March 1, 2004).
- **Upper Fox Wolf River Total Maximum Daily Load (TMDL):** The permitted facility is located within the Upper Fox Wolf River Basin Total Maximum Daily Load (TMDL), which was approved by EPA on February 27, 2020. The TMDL establishes Waste Load Allocations (WLAs) for point source dischargers and determines the maximum amounts of phosphorus and total suspended solids that can be discharged and still protect water quality. The final effluent limits and monitoring expressed in the permit were derived from and comply with the applicable water quality criterion and are consistent with the assumptions and requirements of the EPA-approved WLAs in the TMDL, which are 189 lbs/yr for phosphorus and 13,234 lbs/yr for TSS for the permitted facility. The approved TMDL expresses WLAs as lbs/yr and lbs/day (maximum annual load divided by 365 days). As outlined in Section 4.6 of the Department's *2020 TMDL Implementation Guidance for Wastewater Permits,* TMDL limits must be given in the permit that are consistent with TMDL WLA permit limits derived from the TMDL, and need to be expressed as specified by 40 CFR 122.45 (d) and ss. NR 212.76 (4) and NR 205.065 (7),Wis. Adm. Code, unless determined to be impracticable. Impracticability has already been determined for phosphorus limits as stated in the phosphorus impracticability agreement approved by USEPA in 2012 (see NPDES MOA Addendum dated July 12, 2012 at https://prodoasint.dnr.wi.gov/swims/downloadDocument.do?id=167886175).

  For phosphorus, continuously discharging facilities covered by the UFWRB TMDL are given monthly average mass limits. If the equivalent effluent concentration is less than or equal to 0.3 mg/L, six-month average mass limits (averaging period of May through October and November through April) are also included. The equivalent effluent concentration of 0.17 mg/L was calculated for the facility, thus, TMDL based mass limits are expressed as a six-month average and a monthly average equal to three times the six-month average limits. Final TMDL-based mass limits of 0.68 lbs/day as a six-month average and 2.0 lbs/day as a monthly average that are included in the proposed permit differ from what is recommended in the June 26, 2020 WQBEL memo due to a calculation error. The correct calculations used to determine mass limits are:

$$\text{TP Six-Month Average Permit Limit} = \text{WLA} \div 365 \text{ days/year} * 1.3$$

$$= (189 \text{ lbs/year} \div 365 \text{ days/year}) * 1.30 = 0.68 \text{ lbs/day}$$

$$\text{TP Monthly Average Permit Limit} = \text{TP Six-Month Average Permit Limit} * 3$$

$$= 0.68 \text{ lbs/day} * 3 = 2.0 \text{ lbs/day}$$

  For TSS, continuously discharging municipal facilities covered by the UFWRB TMDL are given monthly average and weekly average mass limits.

Facilities with UFWRB TMDL based effluent limits for phosphorus and TSS must report the 12-month rolling sum of total monthly discharge (lbs/yr). If reported 12-month rolling sums exceed the facility's max annual WLA, the facility's mass limits (monthly average and six-month average) may be recalculated using more appropriate CVs or monitoring frequencies when the permit is reissued to bring discharge levels into compliance with the facility's given WLA.

- **Total Nitrogen Monitoring (NO2 + NO3, TKN and Total N):** The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under s. 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected during the permit term. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the "Guidance for Total Nitrogen Monitoring in Wastewater Permits" dated October 1, 2019. Annual tests are scheduled in the following rotating quarters: October-December 2020, April-June 2021, January-March 2022, July-September 2023, October-December 2024.
- **Temperature Maximum:** New surface water quality standards for temperature took effect on October 1, 2010. These new regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V- Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Based on the available effluent data, no effluent limits are recommended for temperature. However, a full year of monitoring during calendar year 2023 is included to ensure sufficient data is available for subsequent permit reissuance.
- **Whole Effluent Toxicity:** Whole effluent toxicity (WET) testing requirements are determined in accordance with ss. NR 106.08 and NR 106.09, Wis. Adm. Code, as revised August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at http://dnr.wi.gov/topic/wastewater/wet.html). Based on data collected from 02/19/2013 to 12/03/2019, no reasonable potential for acute whole effluent toxicity is shown, and therefore a limit is not required. Acute WET monitoring was removed from the proposed permit in accordance with the Whole Effluent Toxicity Program Guidance Document and checklist. According to requirements specified in s. NR 106.08. Wis. Adm. Code, a chronic WET limit is included in the proposed permit. Chronic WET tests are scheduled in the following quarters: October-December 2020; April-June 2021; January-March 2022; July-September 2023, and October-December 2024.

3 Land Application - Proposed Monitoring and Limitations

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
003	B	Liquid	Fecal Coliform	Injection	Land Application	18 dry U.S. tons (per 2020 permit application)
Does sludge management demonstrate compliance? **Yes**						
Is additional sludge storage required? **No**						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? **No** If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in landapplying sludge from this facility						

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
Is a priority pollutant scan required? **No** Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

3.1 Sample Point Number: 003- Liquid Sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Sample once during 2021
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Sample once during 2021

3.1.1 Changes from Previous Permit:

No changes from previous permit.

3.1.2 Explanation of Limits and Monitoring Requirements

Requirements for land application of municipal sludge are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07(7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k). Land application of waste shall be done in accordance with the permit conditions and applicable codes. All land application sites shall be approved prior to their use. To receive a list of approved sites, or to be notified of potential approvals, contact the WDNR compliance staff.

4 Compliance Schedules

4.1 Effluent Limitations for E. coli

The permittee shall comply with surface water limitations for E. coli as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification

Required Action	Due Date
Status Update: The permittee shall submit information within the discharge monitoring report (DMR) comment section documenting the steps taken in preparation for properly monitoring and testing for E. coli including, but not limited to, selected test method and location of sampling.	11/21/2020
Operational Evaluation Report: The permittee shall prepare and submit an Operational Evaluation Report to the Department for review and approval. The report shall include an evaluation of collected effluent data and proposed operational improvements that will optimize efficacy of disinfection at the treatment plant during the period prior to complying with final E. coli limitations and, to the extent possible, enable compliance with the final E. coli limitations. The report shall include a plan and schedule for implementation of the operational improvements. These improvements shall occur as soon as possible, but not later than April 30, 2022. The report shall state whether the operational improvements are expected to result in compliance with the final E. coli limitations. The permittee shall implement the operational improvements in accordance with the approved plan and schedule specified in the Operational Evaluation Report and in no case later than April 30, 2022. If the Operational Evaluation Report concludes that the operational improvements are expected to result in compliance with the final E. coli limitations, the permittee shall comply with the final E. coli	10/31/2021

limitations by April 30, 2022 and the permittee is not required to comply with subsequent milestones identified below in this compliance schedule (‘Submit Facility Plan’, 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet Limitations', ‘Construction Upgrade Progress Report’, 'Complete Construction', 'Achieve Compliance'). FACILITY PLAN - If the Operational Evaluation Report concludes that operational improvements alone are not expected to result in compliance with the final E. coli limitations, the permittee shall initiate development of a facility plan for meeting final E. coli limitations and comply with the remaining required actions in this schedule of compliance. If the Department disagrees with the conclusion of the report, and determines that the permittee can achieve final E. coli limitations using the existing treatment system with only operational improvements, the Department may reopen and modify the permit to include an implementation schedule for achieving the final E. coli limitations sooner than April 30, 2025.	
Submit Facility Plan: If the Operational Evaluation Report concluded that the permittee cannot achieve final E. coli limitations with operational improvements alone, the permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.	04/30/2022
Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to achieve compliance with final E. coli limitations and a schedule for completing construction of the upgrades by the complete construction date specified below.	03/31/2023
Treatment Plant Upgrade to Meet Limitations: The permittee shall initiate bidding, procurement, and/or construction of the project. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.	09/30/2023
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2024
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2025
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2025

4.1.1 Explanation of Schedule

A schedule is included in the permit to provide time for the permittee to investigate options for meeting new effluent E. coli water quality-based effluent limits while coming into compliance with the limits as soon as reasonably possible.

4.2 Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus

The permittee shall comply with the WQBELs for Phosphorus as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Due Date
Final Plans and Specifications: Unless the permit has been modified, revoked and reissued, or reissued to include Adaptive Management or Water Quality Trading measures or to include a revised schedule based on factors in s. NR 217.17, Wis. Adm. Code, the permittee shall submit final	12/31/2020

construction plans to the Department for approval pursuant to s. 281.41, Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with final phosphorus WQBELs, and a schedule for completing construction of the upgrades by the complete construction date specified below. (Note: Permit modification, revocation and reissuance, and reissuance are subject to s. 283.53(2), Stats.)	
Treatment Plant Upgrade to Meet WQBELs: The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications. .	06/30/2021
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	12/31/2021
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2022
Achieve Compliance: The permittee shall achieve compliance with final phosphorus WQBELs.	06/30/2022

4.2.1 Explanation Schedule

Subsection NR 217.17, Wis. Adm. Code, allows the department to provide a schedule of compliance for water quality-based phosphorus limits where the permittee cannot immediately achieve compliance. This schedule requires the permittee to comply with the final water quality-based phosphorus limits within 7 years of the date the schedule was first granted.

In order to consistently comply with the concentration and mass limits, the permittee should continue to optimize the newly constructed selector Bio-P zones and potentially pilot test chemical addition to ultimately achieve compliance.

Attachments:

Substantial Compliance Determination dated June 25, 2020 and prepared by Barti Oumarou.

Water Quality Based Effluent Limitations for the Markesan Wastewater Treatment Facility dated June 26, 2020 and prepared by Nicole Krueger.

Proposed Expiration Date:

September 30, 2025

Justification Of Any Waivers From Permit Application Requirements

No waivers were given from permit application requirements.

Prepared By: Lisa Creegan, Wastewater Specialist

Date: 8-4-2020

Revised Date (post fact check): 8-13-2020

Revised Date (post public notice):